STRUCTURAL QUALITY ASSURANCE CHECKLIST

Predesign

___ Required deliverables submitted

Schematic Design

___ Required deliverables submitted

___ Floor framing system(s) appropriate for the structure

___ Roof framing system appropriate for the structure

___ Lateral force system appropriate for the structure

Design Development

___ Required deliverables submitted

___ NPS structural standards followed

___ Correct Building Code used

___ Snow Load correct (1608)

___ Roof LL correct (1607.11)

___ Floor LL's correct (Table 1607.1)

___ Wind velocity and exposure correct (Fig 1609; 1609.4)

___ Seismic Ss and Sl correct (Fig. 1615(1) et al)

___ Frost depth correct

___ Foundation design consistent with Geotechnical Report

___ Floor framing system(s) appropriate for the structure

___ Roof framing system appropriate for the structure

___ Lateral force system appropriate for the structure

___ Larger members for larger spans

___ Larger footings at more heavily loaded columns

___ Structural dimensions match Architectural drawings

___ Column orientation matches with Architectural drawings

___ Column grid lines match with Architectural drawings

___ Column and bearing wall locations match with Architectural drawings

___ Complete and continuous load path for gravity loads

___ Complete and continuous load path for lateral loads

___ Outline specs provided for all required sections

100% Draft Construction Documents

General

___ Required deliverables submitted

___ NPS Structural standards followed

___ Correct Building Code used

___ Floor framing system(s) appropriate for the structure

___ Roof framing system appropriate for the structure

___ Lateral force system appropriate for the structure

___ Larger members for larger spans

___ Larger footings at more heavily loaded columns

___ Structural dimensions match Architectural drawings

___ Column orientation matches with Architectural drawings

___ Column grid lines match with Architectural drawings

___ Column and bearing wall locations match with Architectural drawings

Loads

___ Snow Load correct (1608)

___ Roof LL correct (1607.11)

___ Floor LL's correct (Table 1607.1)

___ Wind velocity and exposure correct (Fig 1609; 1609.4)

___ Wind Importance Factor correct (Table 1604.5)

___ Wind Quality Assurance Plan (Exp A & B V3s > 120 mph, Exp C & D V3s > 110 mph) provided (1706)

___ Seismic S_s and S_l correct (Fig. 1615(1) et al)

___ Seismic use group correct (1612.2)

___ Seismic site class correct (Table 1615.1.1)

___ Seismic Importance Factor correct (Table 1604.5)

___ Seismic Design Category correct (Tables 1616.3(1)(2))

___ R, _, and C_d correct (Table 1617.6)

___ Seismic Resistance Quality Assurance Plan provided (1705)

___ Complete and continuous load path for gravity loads

___ Complete and continuous load path for lateral loads

___ Support for mechanical and electrical equipment

___ Special loading conditions (cranes, heavy equipment etc.) addressed

___ Folding partition loads accounted for

___ Load combinations used correctly

Foundation

___ Foundation design consistent with Geotechnical Report

___ Footing extends below frost depth (1805.2.1)

___ Minimum footing width (1805.4.1)

___ Footing step elevations close

___ Seismic requirements for pile foundations

___ Hold down locations clearly shown

Concrete

___ Minimum concrete cover shown (ACI 318-99 7.7)

___ Tie spacing and arrangement correct

___ Development length correct (ACI 318-99 12.2)

___ Reinforcing continuity for negative moment areas

___ Moment magnification considered for concrete columns (ACI 318-99 10.11,.12,.13)

___ Control joint spacing in slabs-on-grade

___ Expansion joints – floors, walls, roofs

___ Crack control for reinforced concrete structures (ACI 318-9910.6.4)

___ Two mats of steel provided for walls 10" and thicker (ACI 318-99 14.3.4)

___ Retaining wall reinforcing shown in the correct locations

Masonry

___ Masonry dimensions modular

___ Control joint locations and spacing for masonry construction

___ Bond beams shown correctly

Steel

___ Correct materials used A992 vs. A36

___ Adequate stiffeners provided for steel members

___“Rolling” forces considered for purlins

___ Second order effects considered for steel frames

___ Complicated/unusual connection detailed

___ Reactions/loads provided for connections not detailed

___ Base plates – 4 anchor bolts minimum

___ Minimum fillet weld size shown (AISC 9th Table J2.4)

___ Special loading conditions for steel bar joists shown

___ Bar joist connections at columns

___ Bar joist bridging shown

___ Bar joist bridging connection to wall or frame

___ Weld pattern for steel decks shown

___ Sidelap and endlap fastening

___ Steel decking continuous over three spans

___ Requirements for special inspection shown

Light Gage

___

Wood

___ Notches and holes (2308.8.2)

___ Truss bottom chords braced for compression due to load reversals

___ Truss profiles provided for prefab trusses

___ Truss loading requirements shown

___ Permanent bracing of prefab trusses shown

___ Cross grain bending and tension avoided

___ Nailing schedule provided (Table 2304.9.1)

___ Diaphragm and shearwall nailing shown

___ Top plate splice detail shown

___ Roof diaphragm shear transfer to shearwalls shown

Specs

___ All required specification sections provided

___ Shoring and bracing of excavations

___ Compaction testing frequency

___ Appropriate cement type

___ Water-cement ratio 0.45 max

___ Testing frequency

___ Mortar and grout specified correctly

___ Wood treatment – no CCA

___ Materials conform to structural standards

Calcs

___ Deflection limits correct (Table 1604.3)

___ Concrete and masonry wall anchorage > 200 plf (1604.8.2)

___1/3 allowable stress increase not allowed if basic load combinations used (1605.3.1.1)

___ Partition live load included (1607.5)

___ Live load reduction (1607.9)

___ Roof DL corrected for slope
___ Unbalanced snow loading (1608.6)
___ Snow drifting (1608.7)
___ Minimum wind pressure 10 psf for MWFRS and components & cladding (1609.1.2)
___ Enclosed vs. partially enclosed
___ Wind uplift addressed
___ Retaining walls F.S. > 1.5 for sliding and overturning (1610.2)
___ Ponding on flat roofs (1611.2)
___ Flood loading when required (1612)
___ Load duration factors applied correctly for timber design (NDS-2001 Table 2.3.2)
___ Allowable stress adjustment factors (NDS) applied correctly (NDS-2001 Table 4.3.1)

Submit 100% Complete Construction Documents for Final Approval

___ Required deliverables submitted
___ All review comments from 100% Draft Review satisfactorily resolved